Health Consultation

CORNELL DUBILIER ELECTRONICS INCORPORATED

SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

CERCLIS NO. NJD981557879

JUNE 10, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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Prepared by:

Exposure Investigation and Consultation Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

Background

The Region II U.S. Environmental Protection Agency (EPA) requested the Agency for Toxic Substances and Disease Registry (ATSDR) evaluate analytical data collected from residential and commercial properties located near and adjacent to the Cornell-Dubilier Electronic Inc. site in South Plainfield, New Jersey, and determine if polychlorinated biphenyls (PCBs) are at levels of public health concern [1]. This health consultation is a continuation of pubic health evaluations for properties located near the former Cornell-Dubilier Electronics facility.

The Cornell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. The 25 acre site is bordered by commercial businesses and residences on the south, west and north, and on the southeast, east, and northeast by an unnamed tributary to Bound Brook [2]. The site consists of the Hamilton Industrial Park, adjacent contaminated residential and commercial properties, and contaminated portions of the Bound Brook downstream of the industrial park. It is estimated that 540 persons reside within 0.25 miles of the site; the nearest residence is approximately 200 feet from the site [2].

During the 1950s, Cornell-Dubilier Electronics, Inc. manufactured electronic parts and components, and tested transformer oils. Discarded electronic components were land filled on site and transformer oils contaminated with PCBs were reportedly dumped directly onto site soils. The company vacated the site in the early 1960s [2].

Environmental Sampling

Indoor dust vacuum and indoor dust wipe samples were collected at residential and commercial properties, respectively. Discrete surface soil samples were collected at residential and commercial properties by collecting the top 0 to 3 inches of soil and the top 0 to 1 inch of soil, respectively [3]. All environmental samples were analyzed for PCBs [3].

Residential Indoor Dust Vacuum [3,4,5]

In October 1998, indoor dust vacuum samples were collected from five residential homes using Nilfisk vacuums equipped with high efficiency particulate air (HEPA) filters (Table 1). Two (135 and 237 Delmore Avenue) of the five homes sampled in October 1998 were resampled to validate previous sampling results (Table 1).

Table 1: *Residential indoor dust data collected October 1998.*

Residence	Location	Sample Area (m^2)[a]	Sample Mass (g)[b]	[PCB] (mg/kg)[c]	PCB loading (mg/m^2) [d]
1. 135 Delmore Ave. *	1st Floor Composite	20.5	0.4	0.62	4.16E-06
135 Delmore Ave.	2nd Floor Composite	28.3	0.19	0.9	1.76E-05
2. 237 Delmore Ave. *	Composite	46.4	0.86	1.9	3.52E-05
3. 126 Spicer Ave.	Living Room	14.9	1.48	0.66	6.56E-05
126 Spicer Ave.	Bedroom	3.8	6.22	0.23	0.000376
4. 401 Hamilton Blvd.	Composite	18.7	6.51	39.0	0.013577
5. 403A Hamilton Blvd.	Composite	8.9	0.86	1.6	0.000155

* indoor dust resampled; [a] m^2 = square meters; [b] g = grams; [c] mg/kg = milligrams per kilogram; [d] mg/m^2 = milligrams per square meter.

Residential Surface Soil [4,5]
In November 1998, 33 discrete surface soil samples were collected from one residential property (Property FF, 126 Spicer Avenue). PCB levels ranged from 0.34 parts per million (ppm) to 1.0 ppm in 19 of the soil samples; from 1.1 ppm to 4.2 ppm PCBs in 13 soil samples; and 6.2 ppm PCBs in one soil sample. From the 33 soil samples collected, this property had an average PCB concentration of 1.3 ppm.

Commercial Indoor Dust Wipe [3]
On October 26 and 27, 1998, indoor dust wipe samples were collected from 13 businesses located adjacent to and across the street from the Hamilton Industrial Park (AKA former Cornell-Dubilier Electronics, Inc. site). The indoor dust wipe samples were collected by wiping a three square inch ($inch^2$) cotton gauze pad moistened with hexane over an area of 100 square centimeters (cm^2). The samples were collected on hard surfaces where workers would most likely be working during the day (e.g., office desk tops, workstations, lunch tables, counter tops next to cash registers) [3]. No PCBs were detected in any of the indoor dust wipe samples above analytical detection limits (1.3 to 2.5 micrograms per 100 square centimeters ($\mu g/100\ cm^2$)) [3].

Commercial Surface Soil [3]
In October 1998, one to two discrete surface soil samples were collected from five of the 13 commercial properties where soil was available for sampling. These soil samples were collected to screen entryway and high use areas of the commercial properties for PCB contamination.

The soil samples were used with indoor dust wipe samples to determine if PCB contamination is being tracked indoors. The PCB levels detected in soil ranged from 0.22 to 7.1 ppm with an average of 1.6 ppm.

Discussion

Residential

Elevated levels of PCBs (39 ppm) were detected in one of the residential indoor dust vacuum samples (401 Hamilton Boulevard); and low levels of PCBs (1.3 ppm - average concentration from 33 samples) were detected in the surface soil samples collected at one residential property (126 Spicer Avenue).

Commercial

PCBs were not detected in any of the indoor dust wipe samples collected from commercial properties.

Surface soil samples were collected at five of the 13 commercial properties. At the commercial properties that were sampled, only one to two discrete soil samples were collected. This limited number of soil samples collected at four of the five commercial properties sampled does not adequately characterize the nature and extent of PCB contamination. The size and the location (e.g., adjacent to a known contaminated property, adjacent to a property that has not been sampled, or near or adjacent to the site) of the property are important factors to consider when determining the number of surface soil samples needed to characterize a property. However at one commercial property, where pavement and concrete covers 90% to 95% of the property, the soil sampling data were evaluated and do not represent a public health concern. See Table 3 in the conclusion section of this document for details on each commercial property.

It is anticipated that populations potentially exposed to contamination at residential properties would include children and adults. Populations potentially exposed to contamination at the commercial properties would include adults. Various activities can lead to children and adults coming into contact with PCB contaminated indoor dust and soil. PCBs can be absorbed into the body via ingestion, inhalation, or dermal absorption following ingestion of dust or soil, inhalation of PCB-laden dust, or direct dermal contact with PCBs in soil or dust. In humans, long-term exposure to PCBs can affect the skin and liver. Reproductive, endocrine, immunosuppressive, and carcinogenic effects have been observed in animal studies [7].

An immunosuppressant effect was observed in a study of monkeys chronically exposed to 0.005 mg/kg/day of PCBs. On the basis of this study of monkeys, ATSDR has derived a chronic oral Minimal Risk Level (MRL) for PCBs of 2.0E-05 mg/kg/day. An MRL is defined as an estimate of daily human exposure to a dose of a chemical that is likely to be without an appreciable risk of adverse noncancerous effects over a specified duration of exposure [7].

Screening level exposure-dose calculations indicate that if children lived in the apartment at 401 Hamilton Boulevard the estimated exposure-dose may exceed the MRL.

Since screening analysis identified potential for health concern, soil and dust PCBs concentrations were evaluated using averaged daily doses estimated for both child and adult residential exposure scenarios and both cancer and non-cancer dose response relationships for PCBs [7,8]. The exposure dose equation and parameter assumptions used for soil assessment followed that found in EPA Risk Assessment Guidance for Superfund [9]. Exposure equations used for indoor dust assessment were based on ongoing methods development by a combined ATSDR/EPA/CDC workgroup on residential dust pathway analysis. Evaluations of health concerns were made on a house-by-house basis using estimated excess individual cancer risk, a margin of exposure analysis relative to the identified LOAEL for immunosuppression, and qualitative consideration of uncertainty based on site specific data.

The indoor dust wipe samples collected at commercial properties were evaluated by comparing the levels detected to EPA's PCB spill cleanup policy which falls under the Toxic Substances Control Act (TSCA) [6]. The TSCA policy is considered to be conservative and protective of public health. The TSCA spill policy requires PCBs to be cleaned to 10 μg/100 cm^2 for high contact surfaces. High contact in industrial settings are defined as surfaces which are repeatedly touched, often for long periods of time. Manned machinery and control panels are examples of high contact industrial surfaces.

ATSDR *Child Health Initiative*

ATSDR considers children in the evaluation of all exposures. When ATSDR evaluated levels of PCBs from the data reported in this document, ATSDR used health guidelines that are protective for children. ATSDR did identify a residential property (401 Hamilton Blvd.) where the levels of PCBs detected in indoor dust are a health concern for children. On February 9, 1999, EPA remediated the indoor dust contamination by replacing the carpeting at this residential property.

Conclusions

Based on available information and evaluation of the indoor vacuum dust, indoor dust wipe, and surface soil data for the residential and commercial properties located near and across the street from the Cornell-Dubilier Electronics site, ATSDR concludes the following:

1. Elevated levels of PCBs were detected in the indoor dust collected at one residential property (401 Hamilton Blvd.) that pose a public health concern. Health evaluations and follow-up health activities for the residential properties sampled are presented in Table 2.

Table 2: Residential Properties Sampled October/November 1998		
Residential Properties	***Health Category***	***Future removal activities & Follow-up health activities for residents with elevated levels of PCBs in indoor dust and/or surface soils***
135 Delmore Ave.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	None.
237 Delmore Ave.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Previous health consultation evaluated soil samples collected in April 1998 and concluded no public health concern [10].	None.
126 Spicer Ave.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No public health concern.	None.
401 Hamilton Blvd.	*Indoor dust PCB levels*: Public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	Reduce/stop potential exposure to indoor dust contaminated with PCBs. Provide health education to residents on ways to reduce/stop potential exposure to contaminated indoor dust. **February 9, 1999, EPA remediated the indoor dust contamination at this residential property by replacing the carpeting.**
403A Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Previous health consultation evaluated soil samples collected in April 1998 and concluded a potential public health concern existed [10]. This property is scheduled for remediation.	None.

2. The number of soil samples collected at four of the five commercial properties sampled were not adequate to characterize the nature and extent of PCB contamination. However, at one commercial property where limited soil was available for sampling a public health evaluation was made. Health evaluations for the commercial properties are presented in Table 3 below.

Table 3: Commercial Properties Sampled October 1998

Properties Sampled	*Health Category*	*Follow-up health activities for commercial properties.*
Strip Mall 340 Hamilton Blvd. **Pizza Stop* **Evergreen Chinese Restaurant* **1 Stop Barber* **Before and After*	*Indoor dust PCB levels*: No current public health concern. Indoor wipe samples were collected at each commercial property. *Surface Soil PCB levels:* No public health concern. (The building, paved parking area, and concrete sidewalks occupy approximately 90% of the Strip Mall property. One surface soil sample was collected next to the rear entryway area of the strip mall from a partially vegetated area.)	None.
Chin Brothers 408 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Indeterminant public health concern because an insufficient number of soil samples were collected. Property is located adjacent to a property that has not been sampled.	Additional soil sampling is needed to adequately characterize the property.
Harry's Liquor 409 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	None.

Table 3: Commercial Properties Sampled October 1998		
Properties Sampled	***Health Category***	***Follow-up health activities for commercial properties.***
Breaktime Restaurant 409 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	None.
Winfall 417 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Indeterminant public health concern because an insufficient number of soil samples were collected. Property is located adjacent to a property that has not been sampled.	Additional soil sampling is needed to adequately characterize the property.
Custom Cleaners 420 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	None.
Moore's Stone and Garden 430 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil samples were collected. Surface soil has be replaced with clean fill material/soil.	None.
Kape Insurance 510 Hamilton Blvd.	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: No soil available for sampling near or adjacent to the building.	None.

Table 3: Commercial Properties Sampled October 1998		
Properties Sampled	***Health Category***	***Follow-up health activities for commercial properties.***
Barbato Construction 321 Spicer Avenue	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Indeterminant public health concern because an insufficient number of soil samples were collected. Property is located adjacent to a property that has not been sampled.	Additional soil sampling is needed to adequately characterize the property.
Department of Public Works 405 Spicer Avenue	*Indoor dust PCB levels*: No current public health concern. *Surface Soil PCB levels*: Indeterminant public health concern because an insufficient number of soil samples were collected. Property is located adjacent to a property that has not been sampled.	Additional soil sampling is needed to adequately characterize the property.

Recommendations

1. Prevent potential exposure to PCBs in indoor dust at levels of public health concern.
   A. Where PCBs in indoor dust were determined to be of health concern, wet and damp dusting and mopping is recommended for floors and hard surfaces using a cleaning solution such as Lestoil or Mr. Clean. These products are mineral-oil-based cleaners that help cleanup the PCBs. Carpets should also be shampooed with these products. The use of a regular vacuum cleaner to remove dust is NOT recommended unless a HEPA (high efficiency particulate adsorption) filter is placed on the vacuum cleaner exhaust.

2. Provide a PCB fact sheet (See Attachment 1) to property owners where PCBs were found to be at levels of public health concern.

3. Collect additional surface soil samples to further characterize PCB contamination at commercial properties.

ATSDR will be available to assist EPA in the evaluation of further data.

Tammie McRae, M.S. Date: 5-19-99

Concurrence: Date: 5/19/99
Richard Canady, PhD, D.A.B.T.

References

1. Written request from Tom Mignone, Agency for Toxic Substances and Disease Registry Region 2 Representative, January 28, 1998 to the Consultation Section to prepare a health consultation for the Cornell-Dubilier Electronics Inc. Site from U.S. Environmental Protection Agency Region II.

2. Agency for Toxic Substances and Disease Registry, Exposure Investigation and Consultation Branch Record of Activity, Cornell-Dubilier Electronics, South Plainfield, New Jersey. Log No. 97-1004. Steve Kinsler. October 7, 1997.

3. U.S. Environmental Protection Agency's Final Report, Vacuum, Wipe, and Soil Sampling, Cornell-Dubilier Electronics, South Plainfield, New Jersey. U.S. EPA Work Assignment No. 3-262. December 1998.

4. Memorandum from U.S. Environmental Protection Agency's Eric J. Wilson to the Agency for Toxic Substances's Region 2 Representative Tom Mignone. Cornell-Dubilier Electronics Site; Five residential indoor dust sampling results and site surface soil location map for property FF. January 22, 1999.

5. U.S. Environmental Protection's Data Validation Assessment for Soil Samples Collected from Property FF in November 1998 for the Cornell-Dubilier Site, South Plainfield, New Jersey. January 18, 1999.

6. Polychlorinated Biphenyls Spill Cleanup Policy, 40 CFR Part 761, U.S. Environmental Protection Agency. April 2, 1987.

7. Toxicological Profile for Polychlorinated Biphenyls (PCBs) Update. U.S. Department of Health and Human Services. Agency for Toxic Substances and Disease Registry. September 1997.

8. PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures. National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency. EPA/600/P-96/001F. September 1996.

9. U.S. Environmental Protection Agency's Risk Assessment Guidance for Superfund (RAGS), Human Health Evaluation Manual (Part A). EPA/540/1-89/002. December 1989.

10. Agency for Toxic Substances and Disease Registry, Exposure Investigation and Consultation Branch Health Consultation, Cornell-Dubilier Electronics Inc., South Plainfield, New Jersey. Tammie McRae. December 17, 1998.

Attachment 1

PCB Fact Sheet

Agency for Toxic Substances and Disease Registry

FACTS ABOUT
Polychlorinated Biphenyls (PCBs)

About PCBs:

PCBs commonly refer to a mixture of synthetic chemicals that have similar chemical structures and are often found together in varying amounts. You cannot taste or smell PCBs when they are present as contaminants in the environment. Although levels are beginning to decrease, small amounts of PCBs can be found almost anywhere in the world. PCBs can be found in the air, in soil, lakes, rivers, and ponds, and in fish and other aquatic animals that live in those bodies of water. Because of past disposal practices, almost everyone and every animal in the world has some PCBs in their body.

Commonly asked questions about PCBs

How might I be exposed to PCBs ?

- The most common and largest source of total PCB exposure is through the food we eat. Meat, fish, chicken, eggs and milk all contain small amounts of PCBs.
- Other potential sources of PCB exposure may include activities where people come in contact with PCBs in contaminated soils and indoor dust.
- Exposure may occur by breathing in or swallowing dust or soil with PCBs or getting soil or dust on your skin (e.g., when gardening or when children play on soils that have PCBs in them). Pets that play outdoors can carry soil with PCBs into the house on their fur.

How can I avoid exposure to PCBs from contaminated soils?

- By washing your hands and face before eating, drinking or smoking.
- By not tracking dirt into your home.

Ways to reduce indoor dust contamination

- Wet mop and damp dust all floors and hard surfaces with a cleaning solution such as Lestoil or Mr. Clean (these products are mineral-oil-based cleaners that help to clean up the PCBs.)
- Carpets should also be shampooed with these products.

Note: Vacuuming with a regular household vacuum is Not recommended because it can stir up dust in the home.

What are the short-term health effects of PCBs?

- Irritation of the eyes, nose, and lungs, and adverse skin effects such as rashes and a condition called "chloracne" have occurred among workers exposed to high levels of PCBs. These effects were observed when PCB oils and mist were breathed in or came indirect contact with the skin, a situation that is NOT like that seen at your home.

- Short-term adverse health effects are not expected from exposure to the levels of PCBs seen in the indoor dust and surface soils sampled at the homes across the street from the Cornell-Dubilier site

What are the long-term effects of PCBs?

- Based on animal studies, there is concern that moderate to high levels of PCB exposure may cause immunological effects.

- Based on animal studies, we believe that PCBs may cause cancer, but only if PCB exposures are to moderate to high levels and the exposure period is over many years.

- In addition, some have argued that moderate levels of PCB exposure may cause learning deficits in children.

Is there a medical test to tell whether I have been exposed to PCBs?

- PCBs can be tested for in blood, body fat and breast milk.

- Blood tests are the best way for finding recent exposures to high levels of PCBs; however, these tests cannot determine the source of the PCBs, or whether individuals will have or develop adverse health effects.

Where can I get more information?

- If you want more information about the Environmental Protection Agency's (EPA) activities, call *Eric Wilson, EPA Representative at 732/906-6991 or Pat Seppi, Community Relations at 212/637-3679*

  If you have questions or concerns about PCBs please contact *Arthur Block, Agency for Toxic Substances and Disease Registry (ATSDR) Senior Regional Representative at 212/637-4307 or 732/906-6931 or ATSDR Division of Toxicology at: 1-800-447-1544*

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